

SUBSTITUTE SPECIFICATION

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AXIAL-AIR-GAP BRUSHLESS VIBRATION MOTOR CONTAINING  
DRIVE CIRCUIT

BACKGROUND OF THE INVENTION

1. Field of the Invention

5        The present invention relates to an axial-air-gap brushless vibration motor suitable for silent information means for mobile communication devices, in particular, to an axial-air-gap brushless vibration motor containing a drive circuit.

2. Description of the Related Art

10      The Applicant has previously suggested a flat axial-air-gap brushless vibration motor of a coreless and slotless type, this motor containing no drive circuit component (Japanese Utility Model Application Laid-open No. H4-137463 and Japanese Patent Application Laid-open No. 2002-143767).

15      A cored motor of a non-circular configuration in which armature coils are wound on a plurality of equidistantly disposed protruding poles and a drive circuit component is disposed on a side of a stator is known as a brushless vibration motor equipped with a drive circuit (Japanese Patent Application Laid-open No. 2000-245103).

20      However, a width of such a motor is increased and the motor exhibits poor mounting efficiency in mounting by an SMD method on a printed wiring board. Moreover, because of the cored configuration, a thickness of the motor is unavoidably large and the motor has poor utility.